

CLAIM SET AS AMENDED

1. (Cancelled).

2. (Previously Presented) An isolated nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO: 3 when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and which comprises a DNA sequence that is amplifiable by polymerase chain reaction with the primers represented by SEQ ID NO: 5 and 6 repeating a cycle of incubation at 94°C for 40 seconds, followed by 40°C for 1 minute, and followed by 72°C for 2 minutes 25 times, and then repeating a cycle of incubation at 94°C for 40 seconds, followed by 45°C for 1 minute, and followed by 72°C for 2 minutes 25 times, wherein the coding sequence of said nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity.

3. (Previously Presented) The isolated nucleic acid according to claim 2, which has a nucleotide sequence encoding the amino acid sequence represented by SEQ ID NO: 2 or 4.

4. (Previously Presented) The isolated nucleic acid according to claim 3, which has a nucleotide sequence represented by SEQ ID NO: 1 or 3.

5. (Currently Amended) A plasmid comprising a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence ~~representing~~ represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO: 3 when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and which comprises a DNA sequence that is amplifiable by polymerase chain reaction with the primers represented by SEQ ID NO: 5 and 6 repeating a cycle of incubation at 94°C for 40 seconds, followed by 40°C for 1 minute, and followed by 72°C for 2 minutes 25 times, and then repeating a cycle of incubation at 94°C for 40 seconds, followed by 45°C for 1 minute, and followed by 72°C for 2 minutes

25 times, wherein the coding sequence of said nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity.

6. (Previously Presented) An expression plasmid comprising:

(1) a promoter that functions in a host cell,

(2) a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO: 3 when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and which comprises a DNA sequence that is amplifiable by polymerase chain reaction with the primers represented by SEQ ID NO: 5 and 6 repeating a cycle of incubation at 94°C for 40 seconds, followed by 40°C for 1 minute, and followed by 72°C for 2 minutes 25 times, and then repeating a cycle of incubation at 94°C for 40 seconds, followed by 45°C for 1 minute, and followed by 72°C for 2 minutes 25 times, wherein the coding sequence of said

nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in a host cell, wherein the promoter, the nucleic acid, and the terminator are operably linked in the above described order.

7. (Previously Presented) A process for constructing an expression plasmid, which comprises combining:

(1) a promoter that functions in a host cell,

(2) a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO: 3 when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and which comprises a DNA sequence that is amplifiable by polymerase chain reaction with the primers represented by SEQ ID NO: 5 and 6 repeating a cycle of incubation at 94°C for 40 seconds, followed by 40°C for 1 minute, and followed by 72°C for 2 minutes 25 times, and then repeating a cycle of incubation at 94°C for 40 seconds,

followed by 45°C for 1 minute, and followed by 72°C for 2 minutes 25 times, wherein the coding sequence of said nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in a host cell, wherein the promoter, the nucleic acid, and the terminator are operably linked in the above described order, thereby generating an expression plasmid.

8. (Previously Presented) A host cell transformed with the plasmid as defined in claim 5 or 6.

9. (Previously Presented) The host cell according to claim 8, wherein the host cell is a microorganism.

10. (Previously Presented) The host cell according to claim 8, wherein the host cell is a plant cell.

11. (Previously Presented) A process for enhancing iron absorbing ability of a plant cell comprising introducing into a plant cell which absorbs iron using mugineic acid compound to solubilize the iron, an expression plasmid formed by combining:

- (1) a promoter that functions in said cell,
- (2) a nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence which hybridizes to the nucleotide sequence of SEQ ID NO: 1 or SEQ ID NO: 3 when incubated in a solution of 5 x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and which comprises a DNA sequence that is amplifiable by polymerase chain reaction with the primers represented by SEQ ID NO: 5 and 6 repeating a cycle of incubation at 94°C for 40 seconds, followed by 40°C for 1 minute, and followed by 72°C for 2 minutes 25 times, and then repeating a cycle of incubation at 94°C for 40 seconds, followed by 45°C for 1 minute, and followed by 72°C for 2 minutes 25 times, wherein the coding sequence of said nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity, and

(3) a terminator that functions in said cell, wherein the promoter, the nucleic acid, and the terminator are operably linked in the above described order, and

expressing said nucleic acid, wherein expression of said nucleic acid in the plant cell enhances iron absorbing ability of the plant cell.

12. (Cancelled) .

13. (Previously Presented) The process according to claim 11, wherein the nucleic acid comprises a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

14-21. (Cancelled) .

22. (Previously Presented) The plasmid according to claim 5, which comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

23. (Previously Presented) The expression plasmid according to claim 6, which comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

24. (Previously Presented) The process according to claim 7, wherein the expression plasmid comprises a nucleic acid comprising a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4.

25. (Previously Presented) An isolated nucleic acid comprising

(a) a nucleotide sequence encoding an amino acid sequence represented by SEQ ID NO: 2 or 4, wherein said amino acid sequence having nicotianamine aminotransferase activity, or

(b) a nucleotide sequence from barley, said nucleotide sequence hybridizes to the nucleotide sequence represented by SEQ ID NO: 1 or 3 when incubated in a solution of 5x Denhart's solution, 5x SSPE and 0.1% SDS at 65°C for 12 hours, washed once with 6x SSP at 65°C for 10 minutes and washed twice with 2x SSP, 0.1% SDS at 42°C for 10 minutes, and wherein said nucleotide sequence encodes an amino acid sequence having nicotianamine aminotransferase activity.

26. (Cancelled) .